

REMARKS

Claims 1-4 and 6-14 are pending. By this response, claims 1 and 6 are amended. Reconsideration and allowance based on the above amendments and following remarks are respectfully requested.

Rejection under 35 U.S.C. 112

The Examiner rejects claims 1-4 and 6-14 under 35 U.S.C. 112, first paragraph as failing to comply with the enablement requirement. This rejection is respectfully traversed.

As stated in MPEP §2164.01, any analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention. The standard for determining whether the specification meets the enablement requirement is provided in the Supreme Court decision of *mineral separation v. Hyde*, 242 US 261,270 (1916) which stated that the determination for meeting the enablement requirement is whether experimentation used to practice the invention is undue or unreasonable.

Further, as stated in MPEP §2164.01(a), there are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is “undue.” These factors include, but are not limited to:

- (a) the breadth of the claims;
- (b) the nature of the invention;
- (c) the state of the prior art;
- (d) the level of one in the ordinary skill;
- (e) the level of predictability in the art;
- (f) the amount of direction provided by the inventor;
- (g) the existence of working examples; and

(h) the quantity of experimentation needed to make or use the invention based on the content of the disclosure.

Applicant respectfully submits that the Examiner has failed to address any of the above factors and therefore has failed to supply sufficient evidence to support the finding of lack of enablement.

Although the Examiner has not fully satisfied the requirements necessary to support a finding of lack of enablement, Applicant in order to aid in the advancement of prosecution has amended claims 1 and 6 to clarify the recitation of the air filter with respect to the engine. Accordingly, in view of the above Applicant respectfully submits that the disclosure is fully enabled and therefore reconsideration and withdrawal of the rejection are respectfully requested.

Embodiments of the Present Invention

In embodiments of the present invention a hybrid thermal/electric engine is taught in which air from an air filter used by the thermal engine, is directed to flow over areas of the electric engine to cool these parts of the engine. Conventionally, electric motors by themselves or as part of a hybrid arrangement are cooled by a separate liquid cooling system or a split design of in which part of the radiator is designated for cooling the electric engine creating a special cooling circuit. It is known in the art that electric motors require a coolant that is much colder than the cooling water needed to cool a thermal piston engine. Therefore, a separate water cooling system is needed or a large radiator. Both of these systems add costs and require larger amounts of space.

One manner of cooling the electric motor is to provide an air flow, via a fan etc, over the motor windings. This is conventionally done for small low voltage generators and motors. With these types of motors the introduction of particulates, moisture and other pollutants found in the air surrounding a vehicle engine is largely of little concern as the low voltage does not lend itself to creating insulation failure. This is the type of motor used by Ishida discussed in more detail below.

In large higher voltage electric motors used in vehicles and trains that are in close proximity to the elements for example, particulates including sand and dirt from the road and railways, which become part of the air flow is directed onto the electric motor and creates problems that cause reliability issues with the electric motor and thus parts of the motor will fail. In the prior art, this problem has been resolved by using the water based cooling system discussed above to alleviate subjecting the electric engine to abundant amounts of particulates and moisture from the environment. However, the issues as discussed above with this type of cooling is still present. Embodiments of the present invention have recognized this problem with the prior art and provide a way to cool the electric motor parts with air without blowing particulates and dirt onto the motor and without including a separate air system for the electric motor. This is accomplished by using the air filter for the thermal engine to filter the air and redirect it to the electric motor. This has not been suggested or taught in the prior art.

Prior Art Rejection

The Examiner rejects claims 1-4 and 6-14 under 35 U.S.C. 103(a) as being unpatentable over Buschhaus et al. (US 5,713,425 A) in view of Ishida et al. (US 5,705,865 A). This rejection is respectfully traversed.

The Examiner provides Buschhaus to teach the use of a hybrid engine. Buschhaus teaches a hybrid powertrain for an automotive vehicle. Buschhaus powertrain is concerned with the distribution of power between the combustion engine and the electric motor generator. Buschhaus does not teach or suggest means for cooling the combustion engine and the electric motor. The Examiner provides Ishida to teach a cooling system for an electric motor not taught or suggested in Buschhaus.

Applicant respectfully submits that Ishida teaches a low voltage electric motor that uses a fan for introducing air into the motor. The fan acts to blow air onto the coils of the electric motor. Applicant respectfully submits that the cooling fan of Ishida does not act as an air filter and the cooling fan is designed only for an electric motor, and thus not part of a thermal engine. In the embodiments of the present invention, the air for cooling the electric motor part of the

hybrid motor comes from the air filter designed as part of the thermal engine. Some of the air from the air filter is directed to the electric motor while the rest of the air is directed to the thermal engine.

Applicant respectfully submits that the combination of Buschhaus and Ishida at best lead one of ordinary skill to include the fan of Ishida into the hybrid motor of Buschhaus in order to provide a flow of air over the electric motor parts. The combination would not lead to directing airflow from an air filter of the thermal engine to parts of the electric motor. Further, there is no suggestion of motivation within the references or by one of ordinary skill to combine the teachings of Buschhaus and Ishida to accomplish the claimed features.

Thus, in view of the above, Applicant respectfully submits that the combination of Buschhaus and Ishida fail to teach or suggest, *inter alia*, wherein at least part of filtered air from an air filter for supplying filtered air to a thermal engine is redirected to pass in such a way that at least part of the electric motor will obtain cooling from the filtered air, as recited in claim 1;

an inlet for receiving filtered air from an air filter for supplying filtered air to a thermal engine and channels for receiving the filtered air and directing the filtered air to pass in such a way that at least part of the electric motor will obtain cooling from the filtered air, as recited in claim 6; and

passing the flow of air to a thermal engine through an air filter to produce filtered air and providing at least part of the filtered air from the air filter to the electric motor to provide cooling thereof, as recited in claim 11.

Therefore, in view of the above, Applicant respectfully submits that independent claims 1, 6 and 11 are distinguishable over cited art. Dependent claims 2-4, 7-10 and 12-14 are also distinguishable over cited art for the above reasons as well as for additional features they recite. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

For at least these reasons, Applicant respectfully submits claims 1-4 and 6-14 are distinguishable over cited art. Favorable consideration and prompt allowance are earnestly solicited.

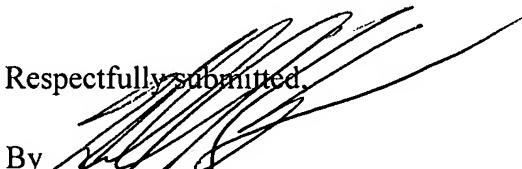
In view of the above amendment, applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Chad J. Billings Reg. No. 48,917 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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